

## Varanus Island Flaring During Sensitive Period 2019

Bridging Document to the Varanus Island Hub Operations Summary

PROJECT / FACILITY	Varanus Island Hub
REVIEW INTERVAL (MONTHS)	No Review Required
SAFETY CRITICAL DOCUMENT	NO

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# 1 Introduction

## 1.1 Purpose

Santos WA submits this bridging document (BD) against the *Varanus Island (VI) Hub Operations Environment Plan* (VI Hub Ops EP) (EA-60-RI-186), Revision 6, in accordance with the Petroleum (Submerged Lands) (Environment) Regulations 2012 for elevated flaring during the identified sensitive period (1 October to 30 April). Although flaring operations are described in sections 3.4.4.3, 3.5.5.3 and 6.2.4 of the VI Hub Ops EP, the proposed flaring from the elevated flare is required during a defined sensitive period at night time, contradictory to current EP commitments described in Section 6.4.3 of the in-force EP.

Furthermore, as per the DoE Referral Submission EPBC 2013/6952 during the period 1<sup>st</sup> October and 15<sup>th</sup> April Santos WA must give consideration of the need to submit a Written Notification (WN) or Bridging Document (BD) to DMIRS for planned additional lighting that may cause:

- Direct light spill on a known turtle nesting beach or Wedge-tailed Shearwater rookery; or
- Indirect light spill on a known turtle nesting beach or Wedge-tailed Shearwater rookery for more than 1 consecutive night.

It is anticipated that there will be direct light spill from flaring operations onto turtle nesting beaches or the shearwater rookeries for more than 1 consecutive night and therefore a Bridging Document (BD) is required.

This document represents the plan to cover the use of the elevated flare during the sensitive period of 1<sup>st</sup> October to 30<sup>th</sup> April as required under the VI Hub EP. The purpose of this plan is to ensure that flaring from the elevated flare over this period is managed to prevent unacceptable artificial light impacts to marine turtle and shearwater breeding activities. All other activities are covered by the current VI Hub EP.

## 1.2 Flaring management under the VI Hub EP

Noting the environmental sensitivities associated with VI and the region more broadly, activities are well managed to minimise impacts to breeding populations of fauna on and around VI. Section 6.3 of the VI Hub EP details the assessment and management controls to manage lighting, including flaring, at VI to ALARP. As the operations at VI are continuous, Santos WA implements a Lighting Management Plan (LMP, EA-60-RI-00153) that sets out requirements to manage operational flaring.

## 1.3 Compliance

Varanus Island Flaring During Sensitive Period 2019 BD (JB-00-RI-20001) was prepared to meet the requirements of Regulation 11(1) of the *Petroleum (Submerged Lands) (Environment) Regulations* 2012 (P(SL)(E) Regulations). The flaring activities will be conducted in accordance with all applicable legislation and regulations and specifically to meet the requirements of the Petroleum (Submerged Lands) Act 1982 (WA) and its regulations.

The proposed flaring will be managed in accordance with the accepted Varanus Island Hub Operations EP (EA-60-RI-186) and the Varanus Island Flaring During Sensitive Period 2019 BD (SO-91-RI-20040) as they cover the expected environmental risks and control measures to be undertaken.

# 2 Activity Description

To complete the safety critical maintenance during shutdown, high pressure flaring from the elevated flare is required. To complete the scheduled maintenance detailed in the approved John Brookes Pipeline Maintenance Blowdown and Restart Procedure (JB-02-IL-20001), including the replacement of

the Last Off Valve (LOV) during shutdown, high pressure flaring from the elevated flare is required. Flaring will take place in both day and night shift, and is critical for the operation, with flaring during the daylight hours only is not possible. The LOV is a safety critical element (that currently does not meet performance standard requirements), hence deferring the activity to outside of the sensitive period (beyond 30<sup>th</sup> of April), is not an acceptable risk.

The estimated duration of high pressure flaring from the elevated flare is 20 hours. However, contingency for additional 15 hours allows for worst case (35 hours total flaring duration). The volume through the flare is estimated to be approximately 427 ksm<sup>3</sup> over the 35 hour duration.

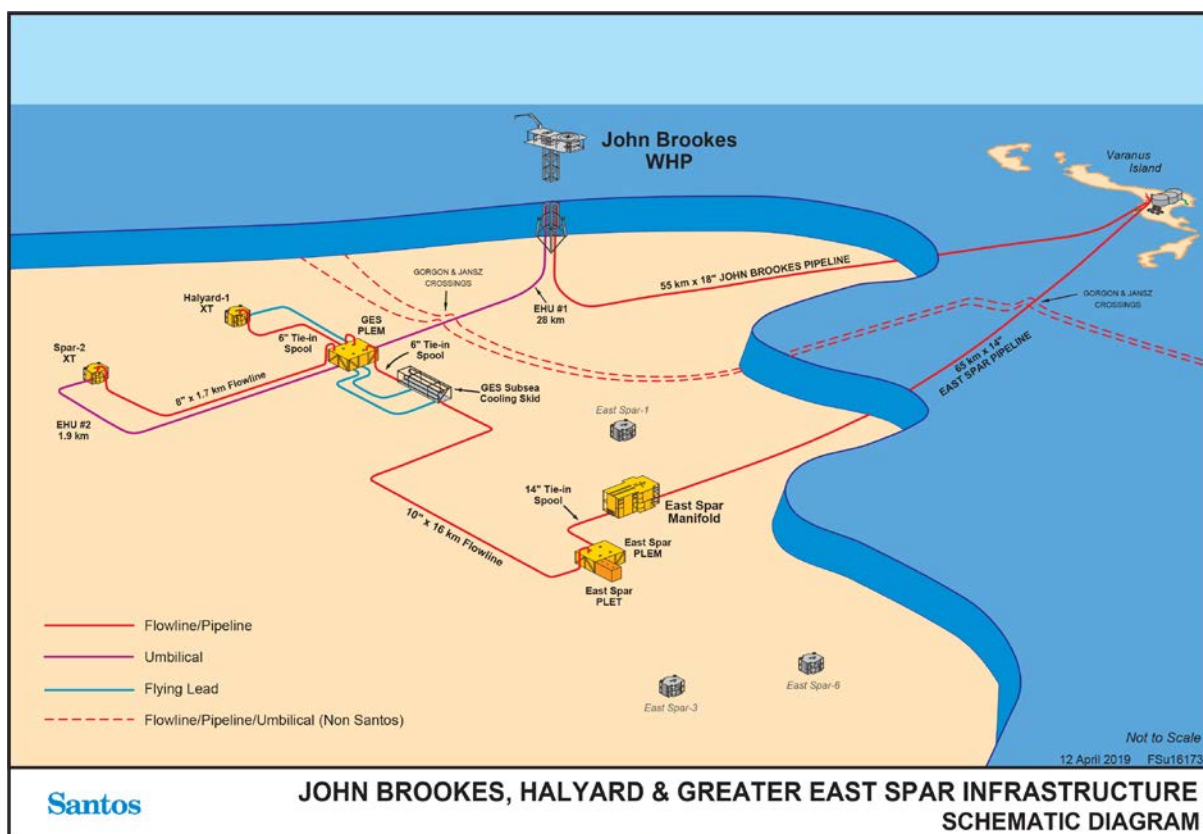
As per the in force VI Hub EP, the elevated flare handles major plant blowdown situations and high pressure flaring. Flaring from the ground flare for this activity is not feasible.

## 2.1 Schedule

The work is scheduled to commence on the 6<sup>th</sup> November 2019 extending to the 7-8<sup>th</sup> November 2019.

## 2.2 Location

Santos WA operates the VI gas plant located on VI within the North West Shelf development area of Western Australia (WA), approximately 58 km from the mainland off the coast at Dampier. VI forms the central gathering and processing hub for Santos WA's offshore oil and gas production facilities in the area. The VI facilities and installations that are brought together onto VI are referred to as the VI Hub.



### Figure 2-1: VI Hub Location

## 3 Description of the Environment

### 3.1 Physical and biological environment

VI is located in the North-West Marine Region (DEWHA, 2008) which lies primarily on the continental shelf between North West Cape and Cape Bougainville. The area has a dynamic oceanographic environment, influenced by strong tides, cyclonic storms, long-period swell and internal tides. Regional surveys on the NWS indicate the seafloor composition is uniform throughout the area, but with spatial variation in the grain size and origin of the surface sediments. Regionally, the seafloor tends to be flat, unconsolidated and sedimentary with occasional calcarenite rock outcrops.

### 3.2 Potential environmental impacts

Flaring from the two shielded low pressure ground flares (HJV and ESJV) is the default flaring option to reduce light overspill to the nearby turtle nesting beaches to ALARP. However, process upset flaring, or high pressure flaring from the elevated flares associated with this activity contributes to additional light being emitted onto these sensitive areas. A risk assessment for artificial light including flaring is described in Section 6.3 of the VI Hub Ops EP, further detail of the risks during the sensitive period is captured below.

The impacts of these changes during the sensitive period for turtles include a decrease in nesting success, beach avoidance by adult nesting females and hatchling disorientation, leading to increased mortality through predation or dehydration (Limpus 2009; Lorne & Salmon 2007; Witherington & Martin 2000 as cited in Commonwealth of Australia, 2012).

Artificial light may impact shearwaters in a similar manner to marine turtles i.e. by altering visual cues for orientation or navigation resulting in behavioural responses which can alter foraging and breeding activity. Fledgling shearwaters are particularly vulnerable to light during the fledgling period in which young birds depart the colony for the first time (late March early April) (Nicholson, 2002). The timing of the proposed activity is well before the sensitive fledgling shearwater timing and therefore no impact to fledglings are anticipated.

### 3.3 Management controls to minimise lighting effects on sensitive fauna receptors

During night time HP elevated flaring operations, Santos WA will visually inspect the surrounding shorelines and areas for disorientated hatchlings post sunrise of the following day. If required disorientated hatchlings will be relocated. A dedicated on the ground SME (Subject Matter Expert) will be deployed for this activity.

Given the short duration of the proposed flaring activity (up to 35 hours) and the activity occurring early in the sensitive period, the proposed risk of flaring during the sensitive period is deemed to have minimal impact on fauna and habitat.

## 4 Stakeholder Consultation

Stakeholders are regularly updated on activities at the VI Hub through Santos WA's Quarterly Consultation Updates. These regular, non-project oriented updates detail Santos WA's ongoing and proposed activities on the north-west shelf, looking out three to six months, including operating facilities. Information provided in this way is intended to afford stakeholders an opportunity to request additional information on specific activities or elements that may be of interest to them, and voice any concerns. Should stakeholders request additional information this can then be incorporated into the relevant documentation, and dialogue with Santos WA can continue should the concerns or issues require further consultation.

No additional consultation was undertaken for this BD as the activity is not significantly different from Santos WA's day to day activities on VI.

## 5 Reporting and Recording

DMIRS will be notified of the flaring commencement and cessation dates.

If incidents do occur during the proposed activity they will be reported to DMIRS under established recording and reporting requirements as documented in the VI Hub Operations EP.

## 6 Contact details

Further information about the flushing activities can be obtained from Santos WA's Consultation adviser on (08) 6218 7100 or email [offshore.consultation@santos.com](mailto:offshore.consultation@santos.com).

## 7 References

Commonwealth of Australia (2012). Marine Bioregional Plan for the North-west Marine Region. Prepared under the EPBC Act 1999. Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Limpus, C.J. (2009). A biological review of Australian marine turtle species, Environmental Protection Agency, Queensland.

Lorne, J. K., and Salmon, M. (2007). Effects of exposure to artificial lighting on orientation of hatchling sea turtles on the beach and in the ocean. *Endangered Species Research* 3, 23–30.

Nicholson, L.W. (2002). Breeding strategies and community structure in an assemblage of tropical seabirds on the Lowendal Islands, Western Australia. Unpublished PhD Thesis, Murdoch University, Perth Western Australia.

## 8 Interfacing Documents

- + Varanus Island (VI) Hub Operations Environment Plan (EA-60-RI-186), Revision 6;
- + Varanus Island Lighting Management Plan (LMP, EA-60-RI-00153);
- + John Brookes Pipeline Maintenance Blowdown and Restart Procedure (JB-02-IL-20001);
- + Varanus Island Flaring During Sensitive Period 2019, Bridging Document to the Varanus Island Hub Operations Bridging Document Summary (SO-91-RI-20040.01);
- + Varanus Island Hub Incident response plan (QE-00-ZF-00044);
- + Incident Command and Management Manual (QE-00-ZF-00025.01); and
- + Emergency response reported as per the Incident Reporting and Investigation Procedure (QE-91-IF-00002).